

City of San José
CLASS SPECIFICATION

TITLE: Instrument Control Technician I/II/III/IV (3761/3764/3763/3765)

DEPARTMENT	ACCOUNTABLE TO	FLSA STATUS
Environmental Services	Instrument Control Supervisor	Non-Exempt

CLASS SUMMARY

Incumbents are responsible for installing, maintaining, repairing, troubleshooting and servicing a wide variety of control instruments and systems utilizing skills and experience with electronic, electric, pneumatic, hydraulic, mechanical, and other recording, indicating, alarm and control instrumentation devices, including integration to Distributed Control System (DCS), Programmable Logic Controller (PLC), and Supervisory Control and Data Acquisition (SCADA) systems.

DISTINGUISHING CHARACTERISTICS

This is a four-level flexibly-staffed class that includes entry through journey-level in the Instrument Control series. Instrument Control Technicians have responsibility for performing routine instrumentation and telemetric systems maintenance and repair activities. Instrument Control Technician IV is responsible for performing more advanced maintenance and repair work, overseeing program elements and administrative duties, and may serve as a lead to lower-level technicians. Instrument Control Technician I/II/III/IV is distinguished from the Instrument Control Supervisor, which has full supervisory responsibility.

QUALIFICATIONS

Minimum Qualifications

Education and Experience

Instrument Control Technician I

Graduation from high school, General Education Development (G.E.D.) Certificate, or California Proficiency Certificate AND one (1) year of instrumentation and controls work experience at an industrial facility similar to that of a wastewater treatment facility.

Instrument Control Technician II

Graduation from high school, General Education Development (G.E.D.) Certificate, or California Proficiency Certificate AND two (2) years of instrumentation and controls work experience at an industrial facility similar to that of a wastewater treatment facility.

Instrument Control Technician III

Graduation from high school, General Education Development (G.E.D.) Certificate, or California Proficiency Certificate AND one (1) year experience as an Instrument Control Technician II with the City of San José OR (3) years of instrumentation and control experience, including one (1) year journey-level, at an industrial facility similar to that of a wastewater treatment facility.

Instrument Control Technician IV

Graduation from high school, General Education Development (G.E.D.) Certificate, or California Proficiency Certificate AND one (1) year experience as an Instrument Control Technician III with the City of San José OR four (4) years of instrumentation and controls work experience, including two (2) years journey-level, at an industrial facility similar to that of a wastewater treatment facility.

Acceptable Substitution

Instrument Control Technician I and II only: Possession of an IBEW/UA (International Brotherhood of Electrical Workers/United Association) Instrumentation Calibration Certification may be substituted for

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one (1) year of instrumentation and controls work experience at an industrial facility similar to that of a wastewater treatment facility.

Required Licensing (such as driver's license, certifications, etc.)

- Possession of a valid driver's license authorizing operation of a motor vehicle in California.

Other Qualifications

(Incumbents may be required to have different combinations of the listed qualifications, or more specific job-related qualifications depending on the position.)

Basic Competencies

(Needed at entry into the job in order to perform the essential duties.)

- Job Expertise - Demonstrates knowledge of and experience with applicable professional/technical principles and practices, Citywide and departmental procedures/policies and federal and state rules and regulations, including knowledge in instrumentation and controls used in industrial settings, in addition:

Knowledge of:

- Technical instruments, basic pneumatic principles, basic mathematic principles, basic electrical principles, and basic electronics principles, basic chemistry principles, safety principles.
- International Society of Automation (ISA) standard symbols and methodology and ability to draw and interpret diagrams and charts to accomplish tasks with minimal or non-existent documentation or support.

Skill in:

- Safe use of instrument testing equipment such as DVM (digital volt meters), control loop simulators, oscilloscopes, pressure and vacuum calibrators, test set-up, and any specialized test equipment found in a wastewater treatment facility or related industrial facility.

Ability to:

- Install, maintain, operate, troubleshoot and calibrate instrumentation to the component level.
- Work with high voltage equipment safely.
- Utilize and work with aging equipment protocols (U.S., European).
- Communication Skills - Effectively conveys information and expresses thoughts and facts clearly, orally and in writing; demonstrates effective use of listening skills; displays openness to other people's ideas and thoughts.
- Computer Skills - Experience with common business computer applications including but not limited to: MS Outlook, MS Word, MS PowerPoint, MS Access, and MS Excel, CMMS Work order system.
- Creativity - Addresses objectives and problems while questioning traditional assumptions/solutions in order to generate creative ideas and new ways of doing business.
- Multi-Tasking - Can handle multiple projects and responsibilities simultaneously; has handled a wide variety of assignments in past and/or current position(s).
- Problem Solving - Approaches a situation or problem by defining the problem or issue; determines the significance of problem; collects information; uses logic and intuition to arrive at

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decisions or solutions to problems that achieve the desired outcome.

- Teamwork & Interpersonal Skills - Demonstrates a positive attitude and flexibility along with the ability to develop effective relationships with co-workers and supervisors by helping others accomplish tasks and using collaboration and conflict resolution skills

Desirable Qualifications

(Knowledge, skills and abilities; licenses, certificates, education, experience that is more position specific and/or likely to contribute to more successful job performance.)

- Possession of an International Society of Automation (ISA), Certified Control Systems Technician (CCST), California Water Environment Association (CWEA) Electrical/Instrumentation Technologist Grade II, &/or Water Treatment Operator or Water Distribution Operator.

Knowledge of:

- Basic water treatment plant procedures.
- Current and developing technology and its impact on current and future capital improvement projects; the facility's operating system and processes and legacy operations and system design; wide range of instrumentation and control products and their applicability to the plants systems and equipment; the computerized process controls –(programmable logic control).
- NEC (National Electricians Code) and NFP70E Electrical Safety.
- NFPA (National Fire Protection Agency)

Ability to:

- Develop and lead I&C Preventative Maintenance programs.
- Design, fabricate and install instrumentation and telemetric systems and components; gather critical amounts of information and resolve issues using instrumentation and control equipment (flow, temp, PH, turbidity, conductivity, pressure, solids (TSS).

DUTY NO.	TYPICAL CLASS ESSENTIAL DUTIES:(These duties and estimated frequency are a representative sample; position assignments may vary depending on the business needs of the department.) Duties may include, but are not limited to, the following:	FRE-QUENCY*
1.	Repairs, troubleshoots, identifies, isolates, and solves system, network and equipment problems.	Continuous
2.	Maintains, operates, installs, adjusts, and calibrates systems and equipment. Inspects, evaluates, operates, maintains, tests, troubleshoots, installs, and repairs instruments, components, systems and equipment including electric, telemetric and pneumatic systems, including pneumatic controls such as 3-15 PSI pneumatic controllers, I to P converters, and P to I converters.	Continuous
3.	Programs, configures, and optimizes the analytical, recording and electronic or pneumatic control instruments and related equipment.	Continuous
4.	Designs, fabricates, and installs instrument and telemetric systems and components to include ensuring code compliance and installing.	Continuous
5.	Meets with capital improvement projects teams related to future changes and considerations regarding instrumentations.	Frequent
6.	Purchases equipment, parts and supplies including: selecting vendors; filling out paperwork; coordinating purchases.	Frequent
7.	Uses CMMS system to fill out work orders and maintains records.	Frequent

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DUTY NO.	TYPICAL CLASS ESSENTIAL DUTIES: (These duties and estimated frequency are a representative sample; position assignments may vary depending on the business needs of the department.) Duties may include, but are not limited to, the following:	FRE-QUENCY*
8.	Performs SCADA, PLC, DCS, and Human Machine Interface (HMI) programming, maintenance, and screen configuration.	Occasional
9.	Creates and updates engineering drawings using AUTOCAD.	Occasional
10.	Develops preventative maintenance procedures and train others.	Occasional
11.	Calculates circuit requirements.	Occasional
12.	Operates computer programs for testing electrical equipment, including PLC and DCS.	Occasional
13.	Levels III & IV may act as a lead, assigning, scheduling and checking work, providing technical direction, determining priorities, and training staff. As a lead, may sign timecards and may give input to the supervisor regarding the employee's performance evaluation, hiring, promotion, termination and discipline of employees.	Occasional
14.	Assign and monitor the work of contractors and temporary workers; work with other trades to install, remove, repair, or replace very large mechanical or electrical services and equipment; meet with and work effectively with a wide range of disciplines addressing Capital Improvement Projects.	Frequent
15.	Maintain: 4-20 mA control loops, DP (differential pressure) cells, RTD (resistance temperature detectors), pressure transducers, level indicators, positioners, valve actuators, fixed and portable D.O. (dissolved oxygen) probes, fixed and portable suspended solids meters, turbine flow meters, density meters, or most control instrumentation devices found in a wastewater treatment facility (or related industrial facilities such as oil refineries, power generation, food-processing, and chemical plants).	Frequent
16.	Performs other duties of a similar nature or level.	As Required

*Frequency defined as %, (totaling 100%) *or* "Continuous" (daily or approximately 20%+), "Frequent"(weekly or approximately 15%+), "Occasional"(monthly or approximately 10%+), "As Required"(Intermittent or 5% or less)

PHYSICAL/ENVIRONMENTAL ELEMENTS

The following is a general statement for the classification. Individual positions may have additional or different physical/environmental elements.

Possess ability to:

- Be subjected to unpredictable working conditions including, but not limited to, noise levels, moving mechanical parts, electrical currents, vibrations.
- Occasionally, be exposed to noxious chemicals, combustible gases, dusts, poor ventilation, extreme temperatures, inadequate lighting, workspace restrictions, fumes, odors.
- Occasionally, lift, carry, push, and pull materials and objects up to 50 pounds.

Classification History Created 05/80, Rev. & Ret. 01/01 (Formerly Instrument Repair Technician), Rev.04/05, Rev 04/15, Rev. 08/17, Rev. 09/22; s008